



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/760,384

01/21/2004

Ying-Hsien Chen

CHEN3621/EM

9817

23364 7590 01/24/2006

BACON & THOMAS, PLLC
625 SLATERS LANE
FOURTH FLOOR
ALEXANDRIA, VA 22314

EXAMINER

RAABE, CHRISTOPHER M

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/760,384	CHEN ET AL.	
	Examiner	Art Unit	
	Christopher M. Raabe	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-16 and 19 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 17 and 18 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,3-5 rejected under 35 U.S.C. 102(b) as being anticipated by Lovoi (USPN 5424605).

With regard to claim 1,

Lovoi discloses an anode plate for a field emission display device comprising: a substrate; an anode conductive layer formed on the substrate (column 14, lines 20-25); at least one interspacing conductive band having a plurality of internal gaps for connecting the anode conductive layer and external cable lines, wherein the interspacing conductive band covers a part of the anode conductive layer (54 of figs. 3,4); and a fluorescent layer located on the anode conductive layer, to serve as a source of luminescence for a field emission display device (column 14, lines 15-25).

With regard to claim 3,

Lovoi the anode plate, wherein the internal gaps of the interspacing conductive band form a pattern of straight stripes, bent stripes, or porous style (54 of fig 3).

With regard to claim 4,

Art Unit: 2879

Lovoi discloses the anode plate, wherein the anode conductive layer and the interspacing conductive band are formed through thin film deposition followed by a photolithography process or through screen-printing (column 11, lines 30-35).

With regard to claim 5,

Lovoi discloses the anode plate, wherein on the interspacing conductive bands, there are further comprising a metal layer, a metal oxide layer, or the combination thereof for covering and protecting the interspacing conductive bands completely (column 8, lines 1-10).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lovoi as applied to claim 1 above.

Art Unit: 2879

With regard to claim 2,

Lovoi discloses the anode plate.

Lovoi does not disclose the use of indium tin oxide. However the use of ITO as anode and anode connection lines was well known to and widely used by those of ordinary skill in the art at the time of the invention to provide an anode with good light transmitting characteristics, and hence would have been obvious to incorporate into the anode plate of Lovoi.

5. Claims 9-14,16,19 rejected under 35 U.S.C. 103(a) as being unpatentable over Lovoi.

With regard to claim 9,

Lovoi discloses a field emission display device comprising: a cathode plate; an anode plate having an electrically conductive layer and a fluorescent layer formed thereon, wherein the electrically conductive layer is composed of an anode conductive layer (column 14, lines 15-25) and at least one interspacing conductive band (54 of figs 3,4), the anode conductive layer is sandwiched between the anode plate and the fluorescent layer for exerting positive voltage on the anode plate, which accelerates the electrons to hit the fluorescent layer and induces the luminescence phenomenon (column 14, lines 15-35), and the interspacing conductive band serves to connect the anode conductive layer with the external cable lines (54 of figs 3,4); a side frame mounted on the joints where the cathode plate and the anode plate are bonded together, to form a fixed space between the cathode plate and the anode plate, wherein the fluorescent layer is located at the inner side of the side frame, and the interspacing conductive band is sandwiched between the anode plate and the side frame; and an adhesive

Art Unit: 2879

layer disposed between the anode plate and the side frame, and between the cathode plate and the side frame, to fix the side frame on the anode plate as well as the cathode plate (fig 4).

Lovoi does not disclose the use of carbon nanotubes as emitters. However, the use of carbon nanotubes as emitters was well known to and widely used by those of ordinary skill in the art at the time of the invention to provide a cold cathode emitter, and hence would have been obvious to incorporate into the device of Lovoi.

With regard to claim 10,

Lovoi discloses the anode plate.

Lovoi does not disclose the use of indium tin oxide. However the use of ITO as anode and anode connection lines was well known to and widely used by those of ordinary skill in the art at the time of the invention to provide an anode with good light transmitting characteristics, and hence would have been obvious to incorporate into the anode plate of Lovoi.

With regard to claim 11,

Lovoi discloses the field emission display device, wherein the interspacing conductive band of the electrically conductive layer has a pattern of straight stripes, bent stripes, or porous style (54 of fig 3).

With regard to claim 12,

Lovoi discloses the field emission display device, wherein the electrically conductive layer is formed through thin film deposition followed by a photolithography process or through screen-printing (column 11, lines 30-35).

Art Unit: 2879

With regard to claim 13,

Lovoi discloses the field emission display device, wherein the adhesive layer is made of frits (column 4, lines 5-15).

With regard to claim 14,

Lovoi discloses the field emission display device, wherein on the interspacing conductive bands of the electrically conductive layer, there are further comprising a metal layer, a metal oxide layer, or the combination thereof for covering and protecting the interspacing conductive bands completely (column 8, lines 1-10).

With regard to claim 16,

Lovoi discloses the field emission display device, wherein the length of the interspacing conductive band is longer than the width of the adhesive layer for preventing the interspacing conductive band from touching with the adhesive layer (figs 3,4).

With regard to claim 19,

Lovoi discloses the field emission display device.

Lovoi does not disclose a plurality of transistors. However, the use of a plurality of transistors in an FED to control the emitters was well known and widely known by those of ordinary skill in the art at the time of the invention and hence would have been obvious to incorporate into the device of Lovoi.

6. Claim 6,15 rejected under 35 U.S.C. 103(a) as being unpatentable over Lovoi as applied to claims 5,14 above, and further in view of Shichao et al. (USPN 5565742).

Art Unit: 2879

With regard to claim 6,

Lovoi discloses the anode plate.

Lovoi does not disclose the layer to be made of chromium, aluminum, zinc, or oxides thereof.

Shichao et al. does disclose a protective layer to be made of chromium, aluminum, zinc, or oxides thereof (column 16, lines 30-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the material of Shichao et al. into the plate or device of Lovoi et al. in order to improve the longevity of the plate or device.

With regard to claim 15,

Lovoi discloses the device.

Lovoi does not disclose the layer to be made of chromium, aluminum, zinc, or oxides thereof.

Shichao et al. does disclose a protective layer to be made of chromium, aluminum, zinc, or oxides thereof (column 16, lines 30-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the material of Shichao et al. into the plate or device of Lovoi et al. in order to improve the longevity of the plate or device.

Allowable Subject Matter

Art Unit: 2879

Claims 7,8,17,18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: While the prior art does disclose an anode plate with an interspacing conductive band having a plurality of internal gaps, the prior art does not disclose the relationship between the width (square measure) of the conducting portion and that of the gaps, as is required by claims 7,8,17,18, hence these claims contain allowable subject matter over the prior art.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN 4386293, 4626741, 5107176, 6476547.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Raabe whose telephone number is 571-272-8434. The examiner can normally be reached on m-f 7am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2879

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CR



ASHOK PATEL
PRIMARY EXAMINER